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REMARKS

Claims 1-4, 6-11, 13-17, 19, and 20, all the claims pending in the application, stand rejected under 35 U.S.C. §103(a) as being unpatentable over Eastty et al., hereinafter "Eastty" (U.S. Patent No. 6,188,344) in view of McNeely (U.S. Patent No. 6,466,277). Applicant respectfully traverses this rejection based on the following discussion.

Applicant respectfully traverses the prior art rejection principally because the prior art of record does not teach or suggest the claimed separate odd and even outputs that the claimed different sets of summations units provide. The Office Action admits that Eastty does not teach outputs for the even and odd samples, and relies upon McNeely for this teaching. However, McNeely also does not teach the claimed separate odd and even outputs either. Instead, as explained in column 4, lines 32-36 of McNeely, this reference actually requires that the outputs of sub-filters 308 and 310 are used to produce a complex output from filter 306. Therefore, McNeely does not teach this claimed feature either, but instead merely teaches the conventional process of combining odd and even outputs, or in this case imaginary and real outputs. Because both Eastty and McNeely combine the odd and even outputs, they produce a filter that must run at the full sample rate. To the contrary, the interleaved structure of the claimed invention can process data at twice the rate of the structures shown in Eastty and McNeely. Thus, as shown in greater detail below, it is Applicant's position that the proposed combination of references does not teach the claimed invention.

The claimed structure is shown in Applicant's Figure 3 and includes one set of summation units that output an even filter output (the upper set of summation units) and a second set of summation units that output an odd filter output (the lower set of summation units). With respect to the claimed structure, independent claims 1 and 15 define that "a first set of summation units has an even output and a second set of said summation units has an odd output." Independent claim 8 similarly defines that "a first set of successive partial summation units has an even output and a second set of said successive partial summation units has an odd output."

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With respect to Eastty, Applicant similarly submits that only a single output is illustrated and that this reference does not teach or suggest the claimed structure that provides one set of summation units to produce an even output and a second set of summation units to produce an odd output. More specifically, Figure 7 of Eastty illustrates a single output 5 at the lower right-hand corner. Further, the Office Action admits that Eastty does not teach outputs for the even and odd samples, and relies upon McNeely for this teaching. Therefore, Applicant again respectfully submits that Eastty does not teach or suggest the claimed invention that utilizes a first set of summation units to produce an even output and a second set of summation units to produce an odd output as claimed and illustrated in Applicant's Figure 3.

McNeely combines a real output with an imaginary output to produce a complex output. More specifically, McNeely explains that filter 306 and each of its component sub-filters 308 and 310 are real (i.e., not complex) filters, and the combination of sub-filter 308, sub-filter 310 and multiplexer 311 operate together to provide a complex output from filter 306. Therefore, McNeely does not teach this claimed feature either, but instead merely teaches the conventional process of combining odd and even outputs.

While neither reference teaches the claimed invention, the Office Action states that making the combined odd and even outputs separable does not patently distinguish the claimed invention over the prior art. However, the invention does more than simply make combined items separable. To the contrary, the invention is able to process twice the number of samples per cycle when compared to the conventional full rate filter. Therefore, the inventive structure is a substantial improvement over conventional filters. The invention reduces the size and cost of the filter by reducing the number of latches required. An additional benefit produced by the invention is a reduction in power consumption. Latches represent a large percentage of the power requirements of a filter. Since, again, the number of latches has been substantially reduced, the amount of power consumed by the inventive filter is substantially reduced.

Because neither Eastty nor McNeely teach or suggest that the circuit should include a first set of summation units to produce an even output and a second set of summation units to produce an odd output, any combination of these references would not teach or suggest this feature of the invention. Therefore, Applicant respectfully

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submits that independent claims 1 and 15 are patentable over the proposed combination of references because the references do not teach or suggest that "a first set of summation units has an even output and a second set of said summation units has an odd output." Similarly, independent claim 8 is also patentable over the proposed combination of references because the references do not teach or suggest that "a first set of successive partial summation units has an even output and a second set of said successive partial summation units has an odd output." In addition, Applicant submits that dependent claims 2-4, 6, 7, 9-11, 13, 14, 16, 17, 19, and 20 are similarly patentable with not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. In view of the forgoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

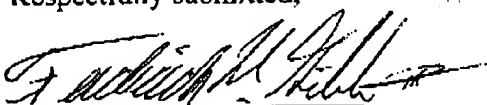
In view of the foregoing, Applicant submits that claims 1-4, 6-11, 13-17, 19, and 20, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

Dated: 11/13/03



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